An Inquiry into the Management of the Second Stage of Labour, (Mechanism of Parturition.) By EDWARD WILLIAM MURPHY, A.B. M.D., late Assistant Physician to the Dublin Lying-in Hospital; Lecturer on Midwifery, &c.

HAVING at a former opportunity entered upon an inquiry into the management of the first stage of labour, for the purpose of determining, if possible, the validity of opposite rules of practice, I propose, at present, to examine in a similar manner the second stage, in order to derive from its consideration some definite conclusions upon disputed points.

By the second stage, I mean that period of the labour which

commences when the os uteri is fully dilated, and terminates in the complete expulsion of the child.

From the time that the os tincæ becomes completely dilated, a series of important changes occurs. The scarcely yielding head of the child is gradually forced through a firmly resisting bony cavity adapted to it so exactly, as to require all the facilities which smoothness of surface, combined with a beautiful mechanism can give to effect its passage, without seriously injuring the intervening soft parts.

It is in this stage that the injurious effects of severe labour are most likely to occur, and that the utmost caution is required, to avoid such as may be the result, equally of precipitancy as of neglect. In proportion, therefore, to its importence, its consideration demands serious attention.

In my former paper* it was stated, that in the first stage of labour the fundus uteri acted upon the os tincæ, with a moderate degree of force; in this stage, however, a marked change takes place, the gradual escape of the head from the uterus diminishes its tension and increases its contractile power, the abdominal muscles and diaphragm are called into action, and all combine to form an expulsive force of great power, which acts in moving the head slowly forwards through the pelvis, in adapting it to its different inequalities, and ultimately in overcoming the elastic tension of the perinæum.

We have thus the fundus uteri, aided by these muscles, first acting against the unyielding bones of the pelvis, and therefore reacting upon the head itself, and again upon the perinæum, sometimes scarcely less resisting. In the whole of this process there is a continued struggle between opposite forces, and all the varieties of rapid, natural, tedious, and difficult labour only mark the different proportions that these forces bear to each other. When the power exceeds the resistance, the labour is rapid, sometimes instantaneous; and any evil effects, as hæmorrhage,

* Dublin Journal, vol. xi. p. 180.

syncope, inversion, &c. &c., occur subsequently to the expulsion the child, and whatever embarrassment they may give the practitioner, depends upon the severity of the symptoms which follow. But where the resistance exceeds the power, difficulties of a different kind present themselves, arising from the impossibility that there sometimes is of ascertaining its degree, or in stricter language, the ratio which these forces bear to each other. In the examination of such labours, we have, therefore, to consider, the vigour of the uterus as compared with our estimate of the magnitude of the obstacle which it has to overcome, and our success in the management of this stage will depend on the accuracy with which we determine the relation between them.

The power which the uterus possesses of maintaining its action for a considerable length of time, has been already discussed in the first stage of labour; its duration in the second cannot be so clearly proved, because a continuance of its action for any lengthened period implies a resistance from the pelvis and a pressure of its linings, which it might be dangerous to hazard, and which, if suffered to proceed, would be accompanied with inflammation in a greater or less degree, which would altogether alter its nature. If it be free from such causes of derangement, it will sustain its action uninjured, for a considerable time; nor is it so much the length of time which the uterus may take to effect the passage of the pelvis, that demands our attention, as the nature of the action as compared with resistance which it has to overcome. In the first stage of labour, the action of the uterus was not found to be uniform, but to observe periods of activity and repose: in the second stage, though throughout more powerful, the same phenomena may be observed, and especially in those cases in which the resistance is great, the uterus appears to shun violence, and seeks to gain upon the difficulty, rather by moderate efforts, renewed after short intervals of rest, than by exerting its ordinary force; such suspensions of uterine action, are essential, not only to maintain the vigour of the uterus, but also to diminish any irritation which may exist in the passages; they are accompanied by no constitutional

disturbance, and should be carefully distinguished from suspension of uterine action, depending upon a very different cause, that which arises from a loss of power in the uterus, and an inability to continue an unequal contest. Much confusion and controversy on the management of this stage, has had its origin in not sufficiently distinguishing these different causes of the same effect, and if the truth were known, more than one case of labour would be found delivered for, and quoted as "uterine inertia," for which there was no other evidence than suspended action, while in many cases the duration of the second stage would seem to occupy a period too long for safety, if we applied the same rule of time indifferently to all cases, and did not bear in mind, that the liability of the soft parts to inflame, of the child to be injured, and even of the uterus itself to suffer, is much more likely to be the result of violent, though short collisions, between these opposing forces, than where the moderate, but prolonged efforts of the uterus are slowly, though certainly, advancing the presentation.

The management then of the second stage may be best understood by examining the nature and degree of the resistance which the uterus has to overcome; this may depend upon some deviation in the presenting part, though the pelvis be regular, upon a deviation or deformity in the pelvis, the presentation being regular or both combined. In labours where the head presents, the deviations in the presentation which gives rise to delay or difficulty are stated to be:—1st. That in which the forehead is anterior, the frontal-bone corresponding to the right or left cotyloid cavity, (fronto-cotyloid presentation, third and fourth position of some, fourth and fifth of others.) 2nd. Where the chin departs too much from the chest of the child. 3rd. Where the face presents. 4th. Where the hand and arm descend with the head.

Of these varieties the first has given rise to much difference of opinion as to its management, some insisting upon the necessity of changing this position (the fronto-cotyloid) to the occipito-cotyloid by direct interference, which others think equally un-

called for: and as it is one of the many instances in which authorities contradict each other in their directions, it becomes one of the questions which it is the object of this paper to determine.

Dr. Denman states, that "in its passage through the pelvis the head of the child, which at the superior aperture was placed with one ear to the ossa pubis, and the other to the sacrum, or with *different degrees of diagonal direction*, undergoes various changes of position by which it is adapted to the form of each part of the pelvis with more or less readiness according to the size, the degree of its ossification, and the force of the pains.

"With all these changes, whether produced easily or tediously, in one or many hours, the practitioner should on no account interfere, provided the labour be natural."*

Dr. Merriman observes: "This kind of labour is not very unmanageable: the head may be longer than ordinary in passing through the pelvis; but if this be well formed, and the pains are strong, it will at length be excluded, and, in the majority of cases, the child will be born alive." Having then alluded to Smellie's and Exton's practice of removing the forehead to the left side of the sacrum, Dr. M. remarks: "It is a practice that may occasionally be adopted with advantage; but I have seen one instance in which the space opened between the pelvis and the child's head by passing the finger, allowed the funis to prolapse, and thus destroy the infant."†

Dr. Blundell speaks with equal caution, "If the softer parts are lax, the pelvis large, and the finger dexterous, I will not assert that you may not be justified in doing what I myself sometimes have done, I mean rectifying the position. Finding that the face of the child is forwards, that the head is above the brim, that the passages are relaxed and capacious, you may put your hand into the uterus, you may lay hold of the head as you would lay hold of any other body, and you may gently place

* Denman, p. 178. † Merriman, Diff. Part. p. 44.

the head with the face in the side of the pelvis; all this, I say, may be done, may be commended, perhaps, sometimes; but beware lest you rashly contuse or lacerate the softer parts." He further adds, "In the majority of cases, however, and especially if you are as yet inexperienced in the practice of midwifery, *you may trust with confidence to the natural efforts.*"*

Dr. Collins gives as the result of his experience, "that all attempts to alter the position of the head in the early period of labour, when found presenting in either of the above mentioned ways, (viz.: face and face to pubis presentations,) are, in my opinion, injudicious."†

On the opposite side we find the practice of Smellie again taken up, and warmly recommended by Dr. John Clark, a practitioner whose opinions have always received a merited respect. Burns and Dewees are also its advocates. Burns says, "As this presentation, whichever way the head turn, is always a production of a labour more or less tedious than a natural one, we should co-operate in the acceleration of the process of turning the head. If it be discovered early it is certainly proper to *rupture the membranes* and turn the vertex round, which is easily accomplished. If the opportunity be lost we may still give efficient assistance by introducing either one or more fingers between the left side of the head near the coronal suture or the temple and symphysis pubis, and pressing steadily during a pain against the frontal or parietal bone."‡

Dewees is still more decided on this point, and in his usual energetic language observes: "We do consider a perfect knowledge of this presentation (for it is far from being an infrequent one) as a matter of high moment to the practitioner. * * * Such positive advantage does a knowledge of this presentation and the mode of reducing it, give one practitioner over another that may be ignorant of it, that he is often able to terminate a

* Blundell, pp. 277—279.

† Collins, Pract. Treatise, p. 35.

‡ Burns, pp. 394—395.

labour in a few minutes, as the other might be hours who was unacquainted with its mechanism. So decided, for this reason, is this knowledge to the suffering woman, that we hold a man incompetent to practise midwifery under its greatest advantages who cannot detect and immediately change the malposition of the head, and thus abridge, sometimes for several hours, the misery and pain of his patient."*

If such were to be the test of competency to practise, it is to be feared that few could venture upon a path so full of intricacies, if an occasional trip in ascertaining this presentation should disqualify him. So far from considering it to be so easily detected that a tyro should know it before he should presume to practise, I believe it to be by far the most difficult properly to understand of all the varieties that are met with, and, notwithstanding the confidence with which Dewees speaks of it, I am disposed to think he had been himself deceived with regard to it; that, in fact, where he imagined he was rectifying the malposition, he was only doing what nature would have done without his assistance in merely following her ordinary course.

As a proof of the difficulty of understanding this presentation, it is sufficient to say, that the whole description given of it by Dewees, (who has followed Baudelocque,) has been completely contradicted, not by a tyro, but by one who has had much experience, and has shown great acuteness of observation. Naegelé has given the subject of presentations his direct and persevering attention, and has observed that the head, which is expelled in the second position, enters the cavity of the pelvis in the third or left fronto-cotyloid position. So that if an examination were made in this stage, the third position would be found, in the language of Dewees, "far from an infrequent one," and, if acting on his advice, the practitioner would not suffer the process to proceed, but would set about to rectify; he would naturally fall into the error of supposing, that by his manipula-

* Dewees, Lond. 1835, p. 244—5.

tion he was obviating a difficulty which had no existence. This difference also about a matter of fact will sufficiently show, that men of acknowledged experience are liable to deception on a point, an accurate knowledge of which Dewees believes to be essential to the beginner.

If, in addition, it is recollected, that the early writers in midwifery, with as much confidence as those in the present day, described the head as passing in the conjugate diameters, which later observers found to be untrue, that even their descriptions, though given with all the minuteness of assumed accuracy, are now called in question, we would admit, perhaps, with Wiedemann, " that in no branch of knowledge does one so long remain a beginner, from the difficulty of the subject, as in the one which we are now treating of."

In fact, few of any experience but will acknowledge the frequent liability to error in determining the position of the head: such difficulty has been candidly admitted by Naegelé, and in stating his conviction, that preceding observers have been mistaken, he adds, " I request those who may be inclined to be displeased with this assertion, which is an open confession of what I am convinced of, to consider how difficult even the greatest masters have described the diagnosis of the head position to be, what has been said on this subject by men, for instance, like La Motte, Pusos, Rœderer, Berger, Saxtorpt. When Rœderer, an observer of the greatest accuracy, says, in speaking of the position of the head when the face is turned towards the pubis: 'Neque penitus cognosci antequam caput est natum.' When a Smellie freely confesses that he had been deceived, who in the world would venture to assert that he could not fall into a similar predicament, or declare his belief in the possibility of others having erred in their results, were heresy."*

The candid acknowledgment of such eminent writers is especially valuable, as it at once affords an answer to these state-

* Naegelé's Mechanism of Parturition, by Rigby, p. 11.

ment, and relieves the patient observer from much of the disappointment which would raise from the difficulty he finds in determining a point which appears so exceedingly simple in print. A little reflection will satisfy us how such deceptions are produced. It must be recollected, that the impressions conveyed by sight and touch are by no means the same, and though we can at once determine the direction of the sagittal suture, when we see the head in a given position, and observe the obvious difference of the anterior and posterior fontanelles, yet it will not be found quite so easy, when we are deprived of all the relations of distance which the eye embraces, and can only depend on the power which we may have acquired of tracing them in detail by our sense of touch. When the head is high in the cavity of the pelvis, we generally feel the sagittal suture, which leads us to either the anterior or posterior superior angle of the parietal bone, if the anterior fontanelle is diminished by the bones overlapping, or if the posterior be increased, (the bones not being ossified sufficiently;) in either case the fontanelles may resemble each other, and *the exact* direction of the suture itself may be uncertain, so that the second and third positions may be confounded, and even the first and third where there is want of sufficient tact, and hence the inexperienced hand might, by interfering, change the first position into the third, and produce the mal-position it was intended to avoid. But without committing such a mistake, the attempt to change the third position prematurely into the second, is only forcing the head into a direction for which it is not yet prepared, and may thus produce delay in its advance. I cannot therefore agree in the rule laid down by Burns, that "when the head is high and the membranes entire, they are to be ruptured and the vertex turned round," because we thus deprive the soft parts of their natural protection, and the head of the means by which its adaptation to the inequalities of the pelvis is more easily effected for the purpose of placing it in what we suppose its correct position, one which, if left to itself, it would naturally

assume as the result of a progressive series of motions, which our interference might totally derange.

Whether we effect the object sought for, viz. to shorten the duration of the labour, is still questionable; and when, in addition, we reflect of the hazard of exposing the soft parts to injury, and the risk there may be to the child's life, we would pause before adopting such a rule. The great desideratum to be accomplished by such means, and which has been described with so much pathos as "abridging for several hours the misery and pain of the patient," an argument which carries with it all the plausibility which appeals made to our natural prejudices must give, requires, perhaps, somewhat more consideration than would, at first sight, appear. The views which Naegelé has taken of this question coincide so entirely with my own, that I gladly avail myself of his language. He says, "If we admit, for which I think I have adduced sufficient grounds, that proportionate difficulties according to the constitution of each individual, and an effort of strength (requisite in child-birth) are inseparable from the nature of this process, we must conclude, *that an abbreviation of this process, though performed by an able hand*, before the salutary change on which the preservation of the health depends, has taken place in the organization of the mother,—that a premature and sudden removal of difficulties cannot be a matter of indifference,—that such a violent interference with the functions of nature must incur the risk of destroying the health, though this should not ensue for some time after."* These remarks were made by him in reference to face presentations, but apply with equal force to those at present under consideration. That labour should be prolonged is not, therefore, to be considered a sufficient justification for intermeddling with nature, more especially as it is evident, that she has not been sufficiently studied, nor are her operations so perfectly understood, that we can venture to supply her place; it is time enough to wait until

* Naegelé's Mechanism of Parturition, by Rigby, p. 89.

we know that she cannot accomplish her object, which can be readily ascertained by finding the head stationary, though the pains be vigorous, long before any dangerous symptoms present themselves. The head may then be dislodged from its situation, and gently moved from the position into which it has been forced, to that which offers least resistance to it; and we shall soon find, that once the head is disengaged, it will glide naturally into the widest space, if we do not, by our fancied sagacity as to what that space is, force it into some other equally unfavourable position.

These objections to the rule, so strongly advocated by Dewees, Burns, and others, receive additional support from facts. I shall present the result of a series of closely observed cases, which demonstrate that where the head enters in the third position, it is generally expelled in the second; thus proving the accuracy of Naegelé's assertion, that where it maintains the third position throughout, it will be safely expelled by the natural efforts; and that the results derived from hospital reports prove the latter position not to be by any means so frequent as is stated. Here it will be necessary to review briefly the manner in which the head descends through the cavity of the pelvis, which, as it is the result of my own observation and of another professional friend, and as it confirms in almost every point Naegelé's description, will afford an additional proof of the accuracy of his experience.

So long as the head is not fairly engaged in the brim of the pelvis, the result of any examination is altogether uncertain, the position of the head is more influenced by the action of the uterus and the motion of the child, than it afterwards becomes, and therefore the head may enter and pass through the cavity of the pelvis in a position precisely opposite to that which was indicated, while above the brim the characteristic signs also of the different positions are much more difficult to ascertain at this stage of its advance, so that it is not until the head becomes fixed in its position, and that its motions are more directly

under the influence of the pelvis, that its direction can be predicted with any certainty. We then find its advance to be effected by a combination of distinct motions harmonizing in such a manner as to place the head always in the direction in which the pelvis will admit the widest space. There is first a slight motion of rotation on its longitudinal axis, so as to bring the side of the head corresponding to the pubis rather lower than the opposite one; so that the ear and parietal bone of that side can be distinctly felt, the sagittal suture being directed towards the sacrum; the object of this partial rotation is obviously to avoid bringing the bi-parietal measurement of the fœtal head (its greatest transversely) directly between the promontory of the sacrum and the pelvis; it may be also that the resistance which the sacrum offers at the brim, to the head descending in the bi-parietal axis, causes the pelvic side of the head uniformly to descend first, bringing a line cutting the bi-parietal axis at an acute angle, in apposition with the antero-posterior measurement of the pelvis. If this line be taken as an axis, there is a second motion of rotation performed upon it in the lateral direction of the pelvis, (which can be best ascertained in second positions of the head,) by which when the occiput passes the brim, the sinciput then appears to descend until it is arrested by the convergence of the planes of the ischia; it then rises slightly, while the occiput again descends until the head is expelled; thus the head appears to oscillate round this its transverse axis. The posterior fontanelle first being lowest, then both appearing to be on the same level, the anterior sometimes lower, and ultimately the posterior descending, and continuing to do so until it escapes under the arch of the pelvis. In some instances in which the pelvis is very wide, or that the planes of the ischia do not sufficiently converge, the sinciput will descend too much, bringing the occipito-frontal axis of the head across the cavity of the pelvis, thus impacting the head, and arresting the descent of the occiput, a deviation which can readily be detected by finding the anterior fontanelle more central and dis-

tinct than usual. Again, the sinciput will continue to descend and become the most depending part, upon which the tumour will be found; when this takes place the anterior fontanelle also can be easily felt, but its situation is nearly the same as in fronto-cotyloid positions of the head, when the occiput descends first, and therefore might be confounded with them. The third motion of rotation is that generally described, by which the head, as it descends, turns from the transverse and oblique measurements into the antero-posterior. This rotation Naegelé states to be only partially accomplished, the head being generally expelled through the outlet in the oblique direction, the occiput rising as it escapes towards the arch of the pubis; the rotation not being completed until the head is nearly protruded. As far as my observations go, this seems rather the exception than the rule, as in most of the occipito-cotyloid positions the occiput passes under the arch, and may be felt dilating the vulva before the head is expelled by the fourth and last motion of rotation round the arch as a centre; the head, however, still maintains the inclination given to it in the first instance, and the pubic side of the head comes out a little before the opposite one: but even here there are many exceptions. Thus the passage of the head, and its complete expulsion, are effected by four rotations, two on the head itself,—the first on its longitudinal axis, the second on its transverse,—and two on the vertebral column, the one in the lateral, the other in the vertical direction; but as the head may be rotated laterally on the vertebral column in any given direction of the pelvis, its variety in this respect has given rise to the classification into positions of the head, which, according to the fancy of writers, have been enumerated from two up to eight, from the two positions (occipito-cotyloid and fronto-cotyloid) most obviously opposed to each other, to all the possible positions in which the head might be placed. It would be a matter almost of indifference which classification should be selected, but as it assists us better in discussing the question now under consideration, we have adopted that which

divides these positions into four, viz. the left and right occipito-cotyloid (1st and 2nd,) and the left and right fronto-cotyloid (3rd and 4th.)

The position and progress of the head was examined in seventy-four cases, and in order to avoid error, I obtained the assistance of my friend Dr. Doherty, to whom I am indebted for some valuable results on this question. Of these seventy-four cases, the following table will show the number in each position.

First Position.	Fourth into First.	Second Position.	Third into second.	Third Position.	Irregular.	Face.
43	3	11	9	2	4	2

It will be seen that the second positions are rather more than those changed from the third into the second; but this difference was deceptive, because many of those given in the second position were examined when the head had descended too low to determine the direction in which it entered the pelvis. With a few exceptions the ordinary course, when the head entered in the third position, was to change as it advanced into the second, and this without appearing to cause any difficulty or delay in its progression. I shall give two cases to illustrate this, one of them observed by Dr. Doherty, the other taken from my note-book.

Case I.—At eleven o'clock, A. M., an examination was made, and as the os tincæ was found to be dilated to one-half, the finger touched the antero-superior angle of the left parietal bone. The anterior fontanelle being directed to left acetabulum, and on a plane lower than the posterior. Twelve o'clock. Os fully dilated; head beginning to go round. Quarter past four o'clock. Head transverse with the anterior fontanelle still lower. Quarter to two o'clock, P. M. Fontanelle beginning to descend being opposite right acetabulum, and on the same plane with the anterior. Two o'clock. Posterior fontanelle continuing

to descend, and most depending. Half past two. Child born in second position. There was no tumour on the head. In this case there was no difficulty presented; and the descent of the head accomplished in three hours and a half.

Case II.—A lady was confined of her first child, and not being very young a tedious labour was expected. About twelve o'clock, noon, the first stage commenced; and at half past nine o'clock, P. M., the os tincæ was half dilated, with the head in the third position. At eleven o'clock the dilatation was completed, head transversely in the cavity, both fontanelles on the same plane. At ten o'clock, A. M., the occiput and a part of left parietal bone began to press on the perineum; at two o'clock got partly under the arch of the pubis, and remained, from rigidity of the perineum, nearly in the same position until six o'clock. At half past six o'clock the child was born safely. A large tumour was found behind the left parietal tuber, occupying the space over the lambdoid suture, between the parietal and occipital protuberances; no injury of any kind occurred. The first stage of the labour occupied eleven hours; the second seven; and the head passed out in the left oblique diameter of the outlet. In both these cases the rotation from the third into the second position of the head was carefully noted, and also that alternate descent of the anterior and posterior fontanelles. They will serve as examples for the rest, in none of which did the labour exceed twelve hours. Those cases in which the head was expelled in the third position were only two, both expelled naturally, one within seven, and the other within twelve hours from the commencement of labour. In the latter the head had been marked from pressure; and as the labour was evidently delayed to twelve hours from arrest, it seemed to contradict the conclusion laid down. It was, therefore, necessary to ascertain whether this position caused similar arrests in other cases, or that the duration of labour was much increased. I have since been furnished with the particulars of six cases of the third position, which put the question at rest.

No.	Time of Labour.	Sex.	Number of Children.	Age.
1	Eight hours.	Girl.	Second.	23
2	Do.	Boy.	First.	19
3	Five hours.	Girl.	Fourth.	28
4	Two hours.	Girl.	Fifth.	30
5	Two hours.	Girl.	Second.	25
6	Two and a half hours.	Girl.	Tenth.	36

From this Table it will be seen that none of the cases exceeded eight hours' duration, though one of them was a first child and a boy, while of the remainder three were under three hours. That the expulsion of the head in the third position does not necessarily prolong the labour, is further confirmed by Dr. Collins's valuable Report; of the cases detailed in his "Practical Treatise" there were—

Under 12 hours, ... 6 cases.
„ 24 „ . . . . . 4 „
Above 24 „ . . . . . 1 „

And amongst those which exceed twelve hours, there were three in which the pelvis was very defective, and required to be delivered by the crotchet.

The following Table will show the comparative frequency of this position of the head, according to the returns of the Paris and Dublin hospitals.

	Total Cases.	L. Pt. Cotyl.	R. Pt. Cotyl.	Face present.	Being
Boivin, . .	20,517	109	92	201	1 in 102
La Chapelle,	22,243	164	92	130	1 in 171
Collins, . .	16,654	..	..	12	1 in 1387

In the French returns it is probable that the positions were entered as ascertained by examination, while in Dr. Collins's they are given according to the manner in which the head was expelled, which would explain the discrepancy in the proportions given, as it is quite possible that in the French Report

some were entered as in the third position previous to the change into the second. It will be admitted, however, that this position occurs but seldom. It has been shown that where it is met with in a well formed pelvis the labour is not delayed, at least to any injurious extent, and therefore seems to contra-indicate the rule, that it is necessary to alter this position of the head by manual aid, to enable it to be expelled. In making these observations it must be recollected, that they are directed against rules of practice which are intended as guides to the inexperienced practitioner; in combating them, therefore, I must not be understood to assert, that practitioners of much experience and acquired tact will occasionally have it in their power to effect with impunity, if not with benefit, this change of position, which writers direct all to do under every circumstance. Such cases can only be considered as exceptions, in which the practitioner, possessing an intimate knowledge of the position of the head, and the exact proportion which it bears to the pelvis, infers that there is not sufficient space to have it so expelled.

There is, however, one exception to this rule of non-interference, viz. the case described as "too early a separation of the chin from the chest of the child," or in other words, that in which the rotation, which has been described, round the transverse axis of the fœtal head, brings the forehead too low down in the pelvis, by which the head becomes fixed with the occipito-frontal measurement nearly corresponding with the bis-ischiatic or transverse measurement of the pelvic cavity. This exception can be always easily detected, not only from the extreme distinctness of the anterior fontanelle and its central position, but also from the immobility of the head, notwithstanding that the finger can be passed along its pubic side with facility, and there seems sufficient space for its advance. This accident usually occurs in a wide pelvis, and in some instances nature will herself remedy the error; the forehead will continue to descend, and change the head from the longitudinal axis to a line passing from the superciliary ridge to the bregma, an oblique measure

ment similar to the occipito-bregmatic, but taken in the opposite direction. The forehead is, therefore, first expelled in the same way as the occiput in ordinary cases, the tumour will be found on the forehead, and the passage of the perinæum more difficult than usual, nevertheless the head will generally be safely delivered. But if this deviation be discovered previously to the descent of the forehead, or when the head is fixed in its occipito-frontal axis, the correction is so easy by resisting its descent, or pressing upwards the frontal bone, and thus allowing the occiput to assume its natural position, that it would be injudicious, if not unwarrantable, to expose the patient to a needless hazard or long continued suffering by hesitation. As to the propriety of interference, such a case, therefore, must be considered an exception to the principle stated.

The remarks that have been made in reference to fronto-cotyloid presentations apply equally to face presentations; they do not necessarily increase the duration of labour, nor is assistance required.

The proportion in which they are met with is nearly as follows:

	Total Cases.	Face presented.	Being
Boivin, ...	20,517	74	1 in 277
La Chapelle, . . .	22,243	101	1 in 220
Collins, ...	16,654	33	1 in 504

The French Reports give no returns as to the duration of labour or the mortality; but according to Dr. Collins the duration of labour was—

" Under 12 hours, ... 31 cases.
„ 24 „ . . . . . 1 „
„ 36 „ . . . . . 1 „
Total, . . . 33

" Four of the thirty-three were still-born; with the first the labour lasted thirty-six hours; the second was an acephalous

fœtus; with the third the labour lasted eight hours; and with the fourth seven hours. All were delivered without assistance."*

So little difference do such presentations make in retarding labour that Dr. Collins further adds: "Some cases of face presentation, I am disposed to think, were not noted, delivery having taken place *so very speedily*, as to excite little attention, and caused it to be overlooked."—p. 34. In fact, such presentation usually occurs in a pelvis sufficiently wide for their expulsion, and though no doubt exceptions may arise in which assistance is required from slight disproportion, they must be extremely rare.

The descent of the hand or arm with the head is also the consequence of a roomy pelvis; it is sometimes an unnecessary cause of impaction of the head, and when the head is thus arrested, it is of course required that we should endeavour to correct the deviation, and keep back the hand, having dislodged it with the head from its position during the interval of the pains; but if it be detected before the head has entered the cavity of the pelvis, or if it does not interfere with the progress of the head, I am inclined to question the propriety of meddling with it. In the latter instance, because no injury can arise until it meets the perinæum, when by ordinary caution, and a very simple management, any accident may be prevented. In the former, making attempts thus early to push the hand back is not likely to be effectual, while there is a risk that the head may be pushed too much *on the brim*, so that the uterus will begin to act more upon the arm than before, and thus gradually convert it into an arm presentation.

With these observations on the deviations which may occur in the presentation though the pelvis be regular, I shall conclude the present paper, reserving the consideration of the deviation in the pelvis to some future opportunity. From what has been stated it would appear, that, with the exceptions already mentioned, manual interference is not necessary to correct these

* Collins, p. 33.

deviations, nor is the labour rendered tedious in consequence of their existence.